

CLAIM AMENDMENTS

1 through 10 (canceled)

11. (New) A method for preparing a stable α -aluminum oxide protective layer for an aluminum-containing alloy Fe-Al or Ni-Al having an Al content of at least about 8% by weight or an aluminum-containing alloy Fe-Cr-Al or Ni-Cr-Al having an Al content of at least about 3% by weight, the method comprising the steps of:

(a) depositing Ni, Fe, Cr or Ti on the surface of the aluminum-containing alloy in an oxygen atmosphere to form on the aluminum-containing alloy, an oxide layer of a non-aluminum-containing oxide; and

(b) heating the aluminum-containing alloy on which is formed an oxide layer of a non-aluminum-containing oxide to a temperature of at least 800° C, whereby the oxide layer of the non-aluminum-containing oxide acts on the surface of the aluminum-containing alloy as a nucleating agent to promote formation of the stable α -aluminum oxide while suppressing formation of metastable forms of aluminum oxide.

1 12. (New) The method according to claim 11 wherein
2 according to step (b) the aluminum-containing alloy is heated to a
3 temperature of 800 to 950° C.

1 13. (New) The method according to claim 11 wherein the
2 non-aluminum containing oxide layer has a maximum thickness of 5000
3 nm.

1 14. (New) The method according to claim 11 wherein
2 according to step (a) the deposition is realized by vaporization
3 and condensing or by cathode sputtering.

1 15. (New) The method according to claim 11 wherein
2 according to step (a) the deposition is carried out through
3 vaporization and condensing, cathode sputtering or galvanic
4 deposition.

1 16. (New) A method for preparing a stable α -aluminum
2 oxide protective layer for an aluminum-containing alloy Fe-Al or
3 Ni-Al having an Al content of at least about 8% by weight or an
4 aluminum-containing alloy Fe-Cr-Al or Ni-Cr-Al having an Al content
5 of at least about 3% by weight, the method comprising the steps of:
6 (a) treating the aluminum-containing alloy in a chloride-
7 or fluoride-containing medium, to selectively oxidize the Fe, Ni or
8 Cr in the aluminum-containing alloy to form on the surface of the

9 aluminum-containing alloy, an oxide layer of a non-aluminum-
10 containing oxide wherein the non-aluminum-containing oxide is iron
11 oxide, nickel oxide or chromium oxide; and;

12 (b) heating the aluminum-containing alloy on which is
13 formed an oxide layer of a non-aluminum-containing oxide to a
14 temperature of at least 800° C, whereby the oxide layer of the non-
15 aluminum-containing oxide acts on the surface of the aluminum-
16 containing alloy as a nucleating agent to promote formation of the
17 stable α -aluminum oxide while suppressing formation of metastable
18 forms of aluminum oxide.

1 17. (New) The method according to claim 16 wherein
2 according to step (a) the aluminum-containing alloy is treated by
3 introducing said alloy into the chloride- or fluoride-containing
4 medium over a period of one minute to five hours.

1 18. (New) The method according to claim 16 wherein
2 according to step (a) the aluminum-containing alloy is introduced
3 into the chloride- or fluoride-containing medium at temperatures
4 between 30° and 100° C.

1 19. New) A method for preparing a stable α -aluminum
2 oxide protective layer for an aluminum-containing alloy Fe-Al or
3 Ni-Al having an Al content of at least about 8% by weight or an

4 aluminum-containing alloy Fe-Cr-Al or Ni-Cr-Al having an Al content
5 of at least about 3% by weight, the method comprising the steps of:

6 (a) heating the aluminum-containing alloy to a
7 temperature below 800° C to selectively oxidize the Fe, Ni or Cr in
8 the aluminum-containing alloy to form on the surface of the
9 aluminum-containing alloy, an oxide layer of a non-aluminum-
10 containing oxide wherein the non-aluminum-containing oxide is iron
11 oxide, nickel oxide or chromium oxide; and

12 (b) heating the aluminum-containing alloy on which is
13 formed an oxide layer of a non-aluminum-containing oxide to a
14 temperature of at least 800° C, whereby the oxide layer of the non-
15 aluminum-containing oxide acts on the surface of the aluminum-
16 containing alloy as a nucleating agent to promote formation of the
17 stable alpha-aluminum oxide while suppressing formation of
18 metastable forms of aluminum oxide.

1 20. (New) The method according to claim 19 wherein
2 according to step (a) the aluminum-containing alloy is heated to a
3 temperature of 750° C.